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| 10/731,383 | 12/09/2003 | Ashutosh K. Jha | NVDA P000862 | 4536 |

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PATTERSON & SHERIDAN L.L.P.
595 SHREWSBURY AVE, STE 100
FIRST FLOOR
SHREWSBURY, NJ 07702

| EXAMINER | |
|---|---|
| LIU, LIN | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/731,383 | JHA ET AL. | |
| | Examiner | Art Unit | |
| | Lin Liu | 2145 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *09 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/09/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/16/2004, 02/28/2005, 01/31/2007, and 02/19/2007.

## DETAILED ACTION

1. The information disclosure statement (I.D.S) filed on 02/19/2007, 01/31/2007, and 09/16/2004 are considered.

2. Claims 1-31 are pending and have been examined.

### *Claim Objections*

3. Claims 24-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The instant claims refer to limitations "notification unit" and "notification descriptor", which are not found in claims 16 nor 21. For the purpose of examination, examiner treats these claims as the dependent claims of claim 22.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-3, 5-10, 13-25 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pinkerton et al. (publication no.: US 2006/0069792 A1)** in view of **Boyd et al. (publication no.: US 2004/0049601 A1).**

Consider **claim 1,** Pinkerton teaches a method of communicating between a TCP stack and an offload unit, comprising:

writing a command including an index corresponding to a delegated connection to an entry in a command linked list (Pinkerton, page 4, paragraphs 40 and 41, noted that the intermediate layer 206 receives and passes the command to the peripheral device 204, wherein the command includes the index of the connection states, CONST, CAHCED and DELEGATED, where the peripheral device 204 has a linked list in storing the parameter information. Noted that the linked list is a type of data structure as applicant's definition of Ring is in the specification);

reading the command from the entry in the command linked list (Pinkerton, page 4, paragraph 41, noted that the command is read back when the offload is terminated);

executing the command (Pinkerton, page 4, paragraph 41, noted the transferring of the connection state index DELEGATED variable); and

writing command specific status to the entry in the command linked list (Pinkerton, page 4, paragraph 41, noted the transferring of the connection state variables, CONST, CACHED, and DELEGATED).

However, Pinkerton does not explicitly teach that the linked list is a circular or ring data structure.

In an analogous art, Boyd teaches a circular linked list (Boyd, page 9, paragraph 118, noted the circular linked list) in queuing the data information.

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to substitute the circular linked list as taught by Boyd with the command ring in Pinkerton's invention in order to provide an efficient and time saving benefit in moving the pointer on the list from the last index to the first index.

Consider **claim 2,** Pinkerton teaches the method of claim 1, wherein the command includes a location of a buffer for storing payload data produced by the offload unit (Pinkerton, page 5, paragraph 43, noted that the data is stored in the buffer).

Consider **claim 3,** Pinkerton teaches the method of claim 1, wherein the command includes connection information needed to setup a delegated connection (Pinkerton, page 7, paragraph 61, noted the DELEGATED connection state includes information such as, sequence number of the received packets).

Consider **claim 5**, Pinkerton teaches the method of claim 1, further comprising: writing a notification descriptor including an index corresponding to a delegated connection to an entry in a notification ring (Pinkerton, page 4, paragraph 41, noted that the intermediate layer receives the command including the index of the connection states, CONST, CAHCED and DELEGATED); and reading the notification descriptor from the entry in the notification ring (Pinkerton, page 4, paragraph 41, noted that the command is read back when the offload is terminated).

Consider **claim 6**, Pinkerton teaches the method of claim 5, wherein the notification descriptor includes one or more notification flags indicating specific information for a connection (Pinkerton, page 11, paragraph 94, noted the flag to indicate that the connection is updated).

Consider **claim 7,** Pinkerton teaches a method of communicating between a TCP stack and an offload unit, comprising:

writing a notification descriptor to an entry in a notification linked list (Pinkerton, page 4, paragraphs 40 and 41, noted that the intermediate layer 206 receives and passes the command to the peripheral device 204 in notifying the peripheral device the state of the connection, wherein the command includes the index of the connection states, CONST, CAHCED and DELEGATED, where the peripheral device 204 has a linked list in storing the parameter information. Noted that the linked list is a type of data structure as applicant's definition of Ring is in the specification);

reading the notification descriptor from the entry in the notification linked list (Pinkerton, page 4, paragraph 41, noted that the command is read back when the offload is terminated); and

determining connection information for a delegated connection based on the notification descriptor (Pinkerton, page 11, paragraph 91).

However, Pinkerton does not explicitly teach that the linked list is a circular or ring data structure.

In an analogous art, Boyd teaches a circular linked list (Boyd, page 9, paragraph 118, noted the circular linked list) in queuing the data information.

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to substitute the circular linked list as taught by Boyd with the command ring in Pinkerton's invention in order to provide an efficient and time saving benefit in moving the pointer on the list from the last index to the first index.

Consider **claim 8,** Pinkerton teaches the method of claim 7, wherein the notification descriptor includes an index corresponding to the delegated connection (Pinkerton, page 4, paragraph 41, noted that the command including the index of the connection states, CONST, CAHCED and DELEGATED).

Regarding **claim 9**, the limitations of this claim are substantially the same as those in claim 6. Therefore the same rationale for rejecting claim 6 is used to reject claim 9. By this rationale **claim 9** is rejected.

With respect to **claim 10,** the method of claim 7, wherein the notification descriptor includes a count of received acknowledgements (It is inherent for TCP protocol to have this feature).

Consider **claim 13,** Pinkerton teaches the method of claim 8, wherein a flag indicates a sequence number threshold was reached on the delegated connection (Pinkerton, page 7, paragraph 61, noted the sequence number).

Consider **claim 14,** Pinkerton teaches the method of claim 8, wherein a flag indicates at least a portion of frame data received on the delegated connection was uploaded by the offload unit to a legacy buffer (Pinkerton, page 5, paragraph 44).

Consider **claim 15,** Pinkerton teaches the method of claim 8, wherein a flag indicates a request for a user buffer for uploading of payload data from the offload unit (Pinkerton, page 5, paragraph 44).

Regarding **claim 16**, the limitations of this claim are substantially the same as those in claim 1. Therefore the same rationale for rejecting claim 1 is used to reject claim 16. By this rationale **claim 16** is rejected.

Regarding **claim 17**, the limitations of this claim are substantially the same as those in claim 3. Therefore the same rationale for rejecting claim 3 is used to reject claim 17. By this rationale **claim 17** is rejected.

Consider **claim 18,** Pinkerton teaches the system of claim 16, wherein the offload unit is configured to write command specific status to the command ring (Pinkerton, page 4, paragraph 41, noted the transferring of the connection state variables, CONST, CACHED, and DELEGATED).

Consider **claim 19**, Pinkerton teaches the system of claim 16, further comprising a transmit descriptor ring configured to transfer transmit buffer information from the TCP stack to the offload unit (Pinkerton, page 6, paragraph 57).

Consider **claim 20,** Pinkerton teaches the system of claim 19, wherein the transmit buffer information includes a delegated connection index (Pinkerton, page 4, paragraph 41, noted that the intermediate layer receives the command including the index of the connection states, CONST, CAHCED and DELEGATED).

Consider **claim 21**, Pinkerton teaches the system of claim 16, further comprising a receive descriptor ring configured to transfer receive buffer information from the TCP stack to the offload unit (Pinkerton, page 6, paragraph 57).

Regarding **claim 22**, the limitations of this claim are substantially the same as those in claim 1. Therefore the same rationale for rejecting claim 1 is used to reject claim 22. By this rationale **claim 22** is rejected.

Regarding **claim 23**, the limitations of this claim are substantially the same as those in claim 6. Therefore the same rationale for rejecting claim 6 is used to reject claim 23. By this rationale **claim 23** is rejected.

Regarding **claim 24**, the limitations of this claim are substantially the same as those in claim 14. Therefore the same rationale for rejecting claim 14 is used to reject claim 24. By this rationale **claim 14** is rejected.

Regarding **claim 25**, the limitations of this claim are substantially the same as those in claim 13. Therefore the same rationale for rejecting claim 13 is used to reject claim 25. By this rationale **claim 25** is rejected.

Regarding **claim 27**, the limitations of this claim are substantially the same as those in claim 10. Therefore the same rationale for rejecting claim 10 is used to reject claim 27. By this rationale **claim 27** is rejected.

Regarding **claim 28**, the limitations of this claim are substantially the same as those in claim 1. Therefore the same rationale for rejecting claim 1 is used to reject claim 28. By this rationale **claim 28** is rejected.

Regarding **claim 29**, the limitations of this claim are substantially the same as those in claim 18. Therefore the same rationale for rejecting claim 18 is used to reject claim 29. By this rationale **claim 29** is rejected.

Regarding **claim 30,** the limitations of this claim are substantially the same as those in claim 21. Therefore the same rationale for rejecting claim 21 is used to reject claim 30. By this rationale **claim 30** is rejected.

Regarding **claim 31,** the limitations of this claim are substantially the same as those in claim 19. Therefore the same rationale for rejecting claim 19 is used to reject claim 31. By this rationale **claim 31** is rejected.

7. Claims 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pinkerton et al. (publication no.: US 2006/0069792 A1)** in view of **Boyd et al. (publication no.: US 2004/0049601 A1)** and further in view of **Boucher et al. (Patent no.: US 6,436,620 B1).**

With respect to **claim 4,** the combined system of Pinkerton and Boyd teaches all the claimed limitations, except that they do not explicitly teach a value representing a number of buffers accepted by the offload unit.

In the same field of endeavor, Boucher teaches a value representing a number of buffers accepted by the offload unit (Boucher, col. 13, lines 8-26, noted the number of buffers in the block).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate the method of indicating the number of

buffers in the block as taught by Boucher in the combined system of Pinkerton and Boyd invention in order to calculate the threshold of the packets that the system can handle and reduce the traffic.

8. Claims 11, 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pinkerton et al. (publication no.: US 2006/0069792 A1)** in view of **Boyd et al. (publication no.: US 2004/0049601 A1)** and further in view of **Meyer et al. (Publication no.: US 2002/0145976 A1).**

With respect to **claim 11,** a combined system of Pinkerton and Boyd teaches all the claimed limitations, except that they do not explicitly teach a flag indicates an acknowledgement threshold was reached on the delegated connection.

In the same field of endeavor, Meyer teaches a flag indicates an acknowledgement threshold was reached on the delegated connection (Meyer, page 3, paragraph 39, noted the duplicate acknowledgement threshold).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate the flag of the duplicate acknowledgement threshold as taught by Meyer in the combined system of Pinkerton's and Boyd's invention in order to indicate the time for a given segment for which duplicate acknowledgement are being received is assumed to have been lost (Meyer, page 3, paragraph 39).

Regarding **claim 12**, the limitations of this claim are substantially the same as those in claim 11. Therefore the same rationale for rejecting claim 11 is used to reject claim 12. By this rationale **claim 12** is rejected.

Regarding **claim 26**, the limitations of this claim are substantially the same as those in claim 11. Therefore the same rationale for rejecting claim 11 is used to reject claim 26. By this rationale **claim 26** is rejected.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Sun et al. (publication no.: US 2006/0161674 A1) discloses a method for network management system.
- Bilic et al. (publication no.: US 2001/0053148 A1) discloses a network adapter with embedded deep packet processing.
- Anand et al. (publication no.: US 2005/0122980 A1) discloses a method for offloading processing tasks from software to hardware.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Liu whose telephone number is (571) 270-1447. The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

L.Liu
05/14/2007

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER